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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/644,490 | 08/19/2003 | Amr Fahim | 030284 | 7407 |
| 23696 | 7590 | 06/13/2005 | EXAMINER | |
| Qualcomm Incorporated Patents Department 5775 Morehouse Drive San Diego, CA 92121-1714 | | | VO, DON NGUYEN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2631 | |

DATE MAILED: 06/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|--------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/644,490 | FAHIM, AMR |
| | Examiner | Art Unit |
| | DON N. VO | 2631 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 19 August 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 17-29 and 38-44 is/are withdrawn from consideration.
- 5) Claim(s) 1-8 and 30-35 is/are allowed.
- 6) Claim(s) 9-13, 15, 16, 36 and 37 is/are rejected.
- 7) Claim(s) 14 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8/19/03 & 3/17/05</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-16 and 30-37, drawn to integrated circuit with Phase-Frequency Detector (PFD) and loop filter, classified in class 375, subclass 376.
 - II. Claims 17-20 and 41-44, drawn to integrated circuit with details of iDAC, classified in class 327, subclass 156.
 - III. Claims 21-25, drawn to integrated circuit with PFD and scaling, classified in class 375, subclass 373.
 - IV. Claims 26-29, drawn to details of PFD, classified in class 375, subclass 375.
 - V. Claims 38-40, drawn to details of loop filter, classified in class 331, subclass 17.
2. The inventions are distinct, each from the other because of the following reasons:
Inventions I, II, III, IV and V are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the subcombination has utility by itself.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification and the search required for each Group is not required for other Groups, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mr. George Pappas (Reg. No. 42,977) on 4/26/05, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-16 and 30-37. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-29 and 38-44 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 9-13, 15, 16, 36 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Gillig et al (5,703,539).

Regarding claims 9, 11, 12, 13, 15, 16, 36 and 37, Gillig, as shown in figures 3 and 6, teaches an apparatus and method for controlling the loop

bandwidth of the PLL comprising phase detector (202) and loop filter (203) wherein the loop filter is operative to adjust the loop bandwidth of the PLL by bandwidth controller (300). See also column 4, line 11 to column 7, line 28.

Regarding claim 10, Gillig further teaches an oscillator (204) and divider (205). See figure 3.

Allowable Subject Matter

7. Claims 1-8 and 30-35 are allowed.
8. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References Dent (6,236,275), Adachi et al (5,872,487) and Kiyota (5,548,679) are cited because they are pertinent to PLL. However, none of the cited references teaches or suggested, in combination, the arrangements of the phase-frequency detector (PFD) to provide PFD output comprised of PFD values and wherein each PFD value is a multi-bit value determined by the phase error and a detector gain as recited in claims 1, 7, 8 or the control unit as recited in claim 30 and further limitation of the dependent claims 2-6, 14 and 31-35.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DON N. VO whose telephone number is (571) 272-3018. The examiner can normally be reached on TUE - FRI (9:00-6:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MOHAMMAD GHAYOUR can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DON N. VO
Primary Examiner
Art Unit 2631